Notebook, N-87-06-00

This notebook covers the period June-October 1887. It was used primarily by Charles Batchelor. There are also scattered entries by Edison and an unidentified employee. The book contains notes regarding orders for machinery and other equipment to outfit the West Orange laboratory. There are also a few notes and drawings pertaining to the layout of the laboratory. The front cover is marked "499." The book contains 217 numbered pages. Several pages were removed before pagination.

Blank pages not filmed: 92-93, 96-101, 150-211.

E172 N-870600

499

Oct 1887

Alternate pages numbered in ○
by N.R. Speiden Oct. 1, 1963
N.R.S.

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①

To be ordered for New Laboratory

Machinery

Ordered

1 42½" X 42½" X 12'
Bement & Miles Planer.

E-1798
219

Ordered through
Geo Place June 1887

Price $2950—

1 #2 Boring machine
(Horizontal. Bement & Miles)

Bores 61"

Ordered through
Geo Place June 1887.

Ordered
Price $1650—

E-1800
NPS. 218
NPS

1 Bement & Miles
Radial Drill press 72 in

Ordered
Geo Place June 1887

Ordered
Price
$2000 –

---

1 60" swing triple geared
lathe –

Ordered through
Shafting Dept. June 1887

Price
$2520 –

(5)

1 Precision Lathe
Dwight & Slade
with Complete Countershafts.

Paid for
Received
Price

Ordered from
Shafting Dept.
June 1887

Received during July

---

1 11" X 30" Brown Engine
80 Rev.

Ordered through
Shafting Dept
June 1887.

Ordered iron plates 400 lb and
Holding Down bolts 145 lb & Anchor 120 lb
Aug 18th 1887.

Price

⑦

1 30" × 12' Putnam Lathe

Ordered through
Shafting dept.
June 18th 1887.

Price
$850 –

---

1 15" Stroke Hendy Shaper

Ordered through
Edison Shafting Co.

Paid for
Received

Price
$300 –

1 Springfield Gas machine

delivered f.o.b. RR at Orange
$900 —

They furnish pipe & fittings for setting
same at 10% advance of cost —
& experienced man at $4 & exes not
to exceed $10 per week

Generator warranted to supply 1200
Cubic feet gas per day
Oil capacity 2000 galls.

Edison told me he had ordered this. Aug 13th 1884

1 Precision Lathe 42" bed
#3. Price – $382.50

With – M. M. & M. Spaid
in Shafting.

Received

We want Aug. 19th 1887

1 Springfield Glue & Emery Wheel Co.
#4 Grinder with 30" x 4" Wheel
Price $320 25% = $240

Wrote Livor to get price —
#1 ditto Wheel 20" x 3" $200 — 25%

Ordered from Livor Aug 22nd
to be delivered Sept 30th

Ordered again Oct 1/.

Pulley ordered
Oct 24th

18" diam
10" face
27/16 bore

Aug. 22. 1889

Wanted

One patent horizontal boring machine
with universal table $125.00
Net $93.75

Egan's

Wanted Aug 22.

1 24" Hand or Buzz ~~saw~~ planer and Jointer, extra long table, adjustable bevel fence & Counter shaft. 145.00

Egans Net $131.25.

Ordered Egans. or its equivalent a Fay.

Scroll Saw.

1 Patent #3 Strain Scroll Saw
Complete with tilting table
$ 115.00

Egan's.   Net $ 86,25

Tags #5

Planer & Smoother

2½ planer & smoother, complete with countershaft & plane 26" wide and 6" thick

300 00

Egan

Net $225.00

Ordered # 388
Tays

Variety Saw

1 Improved Variety Saw
patent bevel table
3 fences – 1 14" Saw –
And Countershaft

Egans.

110.00
Net $82.00

No need of it

Carving & Paneling —

1 Patent carving paneling and edge molding machine with friction countershaft complete
90 + 91

Fays

Net $280.00
del'd at orange

Ordered Oct 11th

Moveable Sand paper mach.

Improved door sand papering
Machine with adjustable disc
and exhaust fan (229) $145.00
Net. del.d Orange

Fay's

Ordered Oct 11d 1887

Sand papering

1 Patent hand feed Sand paper
mach. detachable tables for
Curved or straight work.
230 Net $150.00

Fay's!

Del'd. Orange

Ordered Oct 11th

Surface ornamenting

1 Surface ornamenting machine with radial arbor and ten ass.d cutters 29l. Net 115 00

Fay's deld Orange.

Ordered Oct 11

Circular Saw

1 Improved double circular sawing machine, adjustable table for bevil sawing 196

Faps

Net $300.00

del'd Orange

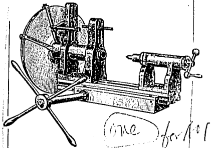
Ordered Oct 11

GEAR CUTTING ATTACHMENT

TO THE

No. 1

Universal Milling Machine.



one for No 1

This device is designed to accelerate the cutting of gear wheels, and also for cutting larger and heavier wheels than can be cut with the ordinary apparatus belonging to the Universal Milling Machine. It swings 14 inches, and is furnished with a 20 in. index containing 4204 holes. It will divide all numbers to 75, and all even numbers to 150. Arbors fitted to the Universal Milling Machine can be used in this device. The screw with set nuts over the spindle is designed as a support for the wheel while being cut. Weight, boxed, 400 lbs. Price,

The head and foot stock of the above attachment can be fitted for use upon the No. 3 Universal Milling Machine. Price,

---

Gear Cutter

1 Gear cutter attachment for #1
Universal mill. mach.
Weight 400 lbs.
20" index — Swings 14"
B.&S.

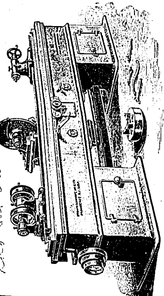
Wrote Livor on Aug 22
$120

Sept 2

23

No. 3

Universal Grinding Machine.



Same size that Gorick St
but with latest impr

Universal Grinder

1 Universal grinding machine same size as one at Gorick St but with all improvements

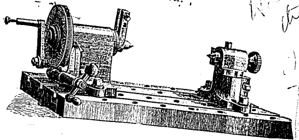
B. & S.

Wrote Liver Aug 22

40" Centres $900

x

24-Inch.



Shaper Centres

1 Set of Shaper Centres in iron
base to be screwed to shaper
bed
swing 7" diam & takes 9" long.

The Hendey Mach Co. Wrote Livor on price
Aug 22.
Price 15" & table $40
24" " $55

*

Blacksmiths Swage

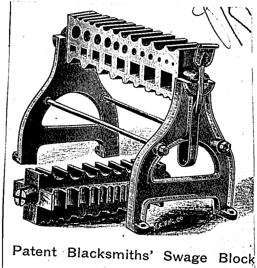
1 Stiles & Parker's patent Swage block

Weight with two blocks 700 lbs.

Wrote St. & P. Aug 22 1887

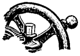
letter 23d

$30 less 15%



Patent Blacksmiths' Swage Block No. 300.

Centre Grinder



Wire Cutter

1 Gillespie's Wire Cutter for bench. #2 cuts 0 wire or $\boxed{2}$ 3/4" – price $45

Write M. M. T M.
Given Aug 29 1884

Gear Cutter

Gould & Eberhardt Gear Cutter
get Cut & price

Wrote them 24th Aug

36"	with Aut. Rack attach.	$11 00
50"	" " " "	11 75

5% for Cash

Wrote Rivor for Brainerd Gear
Cutter Aug 29

Power Shearing ~~slitting~~

ask M M & M for cuts on this

~~Bliss & Co #105.~~ ~~$46.00~~

~~5% 88. Fob N.Y.~~

Steam Chest

One Steam Chest for
(canned fruits)
36" X 36" X 37" 2500 lb.
With~~out~~ castors _ Steam guage
and brass cased thermometer
List _ $227.00

Bliss & Williams

Edison wrote for this Aug 22 5% off.

x

Slitting Shear

1 Slitting Shear #105 for
slitting #18 Stubbs guage
Brass, Zinc, etc 12" wide

385 lb.   List $45 —
                        5% 88.

Bliss & Williams
Edison, wrote Aug 22

Spinning Lathe

1 Silversmith Spinning Lathe
with oval chuck.

Bliss & Williams List $400 00

Edison wrote Aug 22

Gas Fire pots

For heating soldering irons
with gas and air attachments
2.50 each

Bliss & Williams -
Edison wrote Aug 22.

Differential Pulley Blocks.

Write Lion

Belts

(63)

Fire Hose

Akron Rubber Co

Travelling Crane

Get plan.–

Plans. } Aug 29 Sent to Yale & Towne
" " Sent to Liver

Ben W making it

Oct 18th

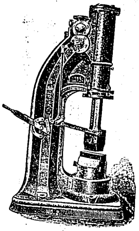
Portable Hand drills

Get 2 from C.M.W.

~~6" Vise~~

~~Bell Hammer~~

Wheelbarrows



THIS CUT REPRESENTS No. 2 STEAM HAMMER.

Diameter of Cylinder, 8 inches.
Stroke or Lift, 18 inches.
Will strike a blow of 4,000 lbs., and 200 blows per minute.
Average diameter of shaft which can easily be beaten out at a single heat, 6 inches.
Total weight, 4,000 lbs.
Price, $550.

Steam Hammer

Wrote Bell today
Aug 23.

List price for hammer
for 6" forging
$550 on Cars in Buffalo.
20% discount

125 H.P. Engine Aug 22.

125 H.P. 14½" x 15" A&S
engine with Foundation box

A&S.

Engine	$2175
F Box	105
	$2280
Less & Net.	$1450 —

They furnish man to set up at their
expense we to board him

Wrote & told them to go ahead
Sept. 2 1884.

80 HP Engine Aug 22

1 A & S. 13" x 12" A & S engine

$1500
65
$1565

Net price $1000

They send man to put up and we board him

Wrote & told them $90 ahead
Sept 2 1887

Ordered

16" X 20" 6 ft B'port Lathe

✓ Bridgeport 20" 6 ft lathe
with taper attachment
$500

Paid for & del'd

14" Hand lathe

1 Bridgeport hollow spindle
hand lathe & slide rest
$175

Used for Udel?

Spencer hand Lathe

1 11" x 4' Spencer hand Lathe $100

Paid for + del'd

Brown & Sharp Miller

Brown & S. #1 Universal Milling
machine & tools $593 —

Paid for & delivered

Sensitive drill

1 Plate Sensitive drill 9/7/65

Paid for & del^d

Babcock & W. Boilers

3 173. H.P. boilers complete

B & W to give estimate Aug 25th

Del'd f.o.b. Orange & erected

	$4978
10%	497
	$4481
Sept 1st 1901 5% csh.	224
	$4257

Ordered Aug. 30th

Jarvis setting

Setting for three boilers with flue & all ready to run

To give estimate Aug 25th.

+ having boiler
[illegible]

$1664 —

Or. We will furnish plates & Castings for $115 each & will send a man (skillfull mason) to superintend at ($4.00) per day.

Orders Sept 19th

Contract given $1988
Boilers & 2 a+8 engines

O. [illegible] [illegible]
36 Boyden Street
Machinist with [illegible]

Bench legs.

Ordered 36 from CMW
Aug 29 to be shipped to
Orange, N.J. C.D.

Pulleys

1 5' 4" X 18" X 3" Crowned

2 4' X 12" X 3" "

These ordered from E.M.W.
Sept 2nd 1884.

Lumber & board prices delivered

White pine free from Knots.
12" 14" & 16" wide 1¼" thick
planed both sides 6¢ per foot

6" x 7/8" faced both sides 5¢ per foot
12 x 7/8 " " " 5½¢ per foot

2" x 4 Scantlin $14.50 per ~~ton~~
Hemlock, 12" x 1 and 12" x 2" rough 14.50 per M

~~Spottiswood & Co.~~ Ayers.

1884
Ordered
oct 6th 20 ft of 4" pipe

53 ft

Drain pipe Order

(105)

Sept 29th 1887

~~100~~ feet 4" drain pipe
~~85~~ do " " "
~~7~~ " " " "
~~89~~ " " " "
~~87~~ " " " "
~~6~~ feet " " "
~~87~~ " " " "
~~74~~ " " " "
~~[illegible]~~ " " " "
~~89~~ " " " "
~~87~~ " " " "
~~12~~ " " " "

743 feet "

43 feet 8" drain pipe
76 " " "
119 feet

136 feet 10" drain pipe

125 feet 12" drain pipe

12 4" elbows (bottom of leaders) in small building.

1-Tee 4"x4"x8"

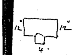
3 - 8 inch drain angle

9 - 4 inch angle bends

1-10"x 8"x 4" angle bend

7-10"x10"x 4" angle bend

1-12"x10"-45° angle bends

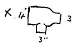


2-12"x12"x 4 Tee

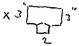
All in yard.

Fuel gas pipe

√ 140 ft 3 inch pipe
8 " " "
√ 10 " 2 "



1. tee 4"x3"x3"



1 - 3"x3"x2"

+ 1 - 3" Elbow

In yard

City gas pipe

√ 163 ft - 2" gas pipe √
1 - 2" Elbow x
√ 30 - 1½" gas pipe √
√ 240 - ¾ gas pipe √

2 Tees 1½ x ¾ x 1½ x
3 - ¾" Elbows x

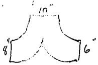
In yard

Water piping

276 feet of 2" pipe }
3 Tees and 2 Elbows } In yard
xx

Blower pipe

26 ft. 10" pipe



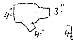
1. galvanized iron pipe 10"×8"×6"

92 ft. 8" gal iron pipe
1 - 8" Elbow
94 - 6" gal iron pipe
1 - 6 gal iron Elbow

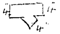
In Yard

Drain pipe for Water Closets &c —

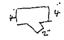
Vitrified clay
14 ft 2" ~~cast iron soil~~ pipe
8 - 4. " " "
8 — 4 " " "
8 — 4 " " "
250 — 4" " " "
26 3 " " "
1 — 3" x 2" ~~cast iron~~ Elbow
1 — 4" ~~cast iron bend~~ angle 45°
1 — 4" ~~" " "~~ " 45°
1 — 4" ~~" "~~ " " 45°
1 - 4" x 3" x 4" angle Tee

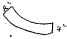


2 - 4 x 4 x 4 " "



1 - 4" x 4" x 2" angle Tee





1 — 4" bend angl 45°
ft - 2" vitrified ~~cast iron~~ drain pipe
1 — 2" " " bend angle 45°.

Chemical Laboratory.

100 feet 3" wrought iron pipe for Air blast.
924 " 1" steam pipe
30 " 2" " "
84 — 1¼ gas pipe for water
140 — ½ " " " "
75 — 2" gas pipe
75 — ¾ " "
50 — 1" " "
56 — 1" " "
110 — ½ " "
~~170~~ — 2 vitrified drain pipe
~~11~~ — 2" vitrified angle Tees

~~14~~ elbows 2"

Carpenters Shop.

120 feet 2" steam pipe
502 " 1" " "
~~58~~ " 2" vitrified drain pipe
~~8~~ — 2" vitrified Elbows
~~1~~ — 2" bend angle 45°
65 feet 5/8 iron pipe

Galvanometer Building

~~75~~	feet	1½" brass steam pipe
~~112~~	"	¾ "
~~100~~	"	½ brass gas pipe
~~20~~	"	2" vitrified drain pipe
		✗ Elbow.

200
200
40000

75
75
375
525
5625
22500

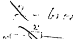
150
150
7500
150
22500

Metallurgical Building

√ 1000	feet	1" steam pipe
√ 30	—	2" " "
~~10~~	—	4" vitrified drain pipe
		—2— 4" vitrified Elbows
75	feet	2" water pipe

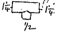
Steam and Gas Fittings

~~4~~ – 1½" brass Elbows
~~8~~ – 3/4 " steam Elbows
~~2~~ – brass branch Tees with back outlet fig 3/.



back outlet 2" with 4 – 3/4 branches

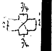
~~2~~ – 2" Jenkins patent globe Valves } must be all brass
~~2~~ – 2" " steam " Valves }
~~5~~ – 1¼" brass pipe Elbows
~~12~~ – ½" " " "
~~6~~ – cast iron branch Tees with back outlet 2" 4 outlets in front 1" diam each
+24 – 1" Elbows iron
+18 – 2" " "
~~66~~ – cast iron supports for 4" pipe
22 brass supports
~~6~~ – Jenkins 2" steam globe Valve iron body
+ 7 – 1¼" x ½" Tees



+ 2 – 1¼ Elbows
+ 2 – 1". Elbows
+10 – Tees 1 x ½"

+ 1 – 2 x 3/4 Tee
+ 6 – 3/4" Tee
+20 – 3/4 x ½ Tee
50 feet ½" gas pipes
5 " 3/4 pipe
16 " 3/4 "

1 – 2" x 3/4" cross



Main Building

120 feet 3" blower pipe
122 – 5" "
V 96 – 5/8 water pipe

100 100
10000

200 200
40000

$\frac{1}{2}$	2"	$1\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	3"	1	$1\frac{1}{4}$
140	160	30	96	240	140	924	84
110	10		65	75	8	106	
65	30				100	502	
	75					1000	
	120						
	30						
	[illegible]						

Blower

#2 Roots ordered Oct 20 1887

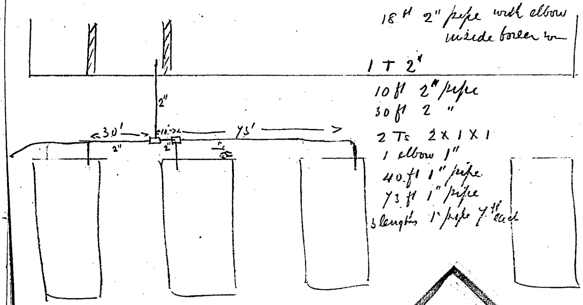
Counter & pulleys ordered
Oct 24

1187

3+2

10
50
25
9 3

Live steam



18 ft 2" pipe with elbow inside boiler room

1 T 2"

10 ft 2" pipe
30 ft 2 "
2 Ts 2 X 1 X 1
1 elbow 1"
40 ft 1" pipe
73 ft 1" pipe
3 lengths 1" pipe 7 ft each

123

1 length 18 ft. 3" pipe with elbow inside boiler rm

1 3 X 2 X 3 T

1 length 7 ft. 3" pipe

1 3 X 3 X 2 T

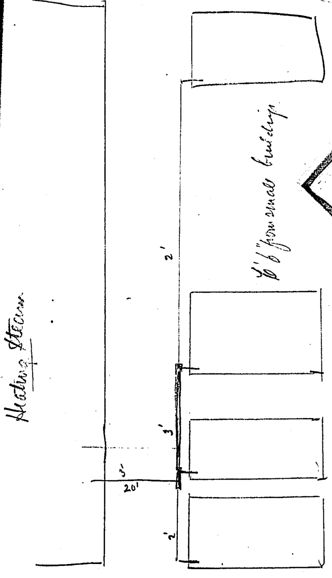
1 length 54 ft. 3" pipe

1 3 X 2 X 2 T

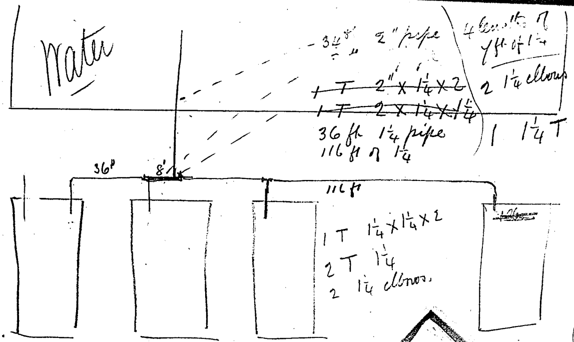
1 length 118 ft. 2" pipe

2 2" elbows.

4 lengths 2" pipe 7 ft. each


Heating Steam
2'
3'
3'
20'
2'
8' 6" from inside building

200
200
40000


Water
36 ft
8'
116 ft

- 34 8' 2" pipe

~~1 T 2" x 1¼ x 2~~

~~1 T 2 x 1¼ x 1¼~~

36 ft 1¼ pipe

116 ft of 1¼

4 lengths of
7 ft of 1¼

2 1¼ elbows

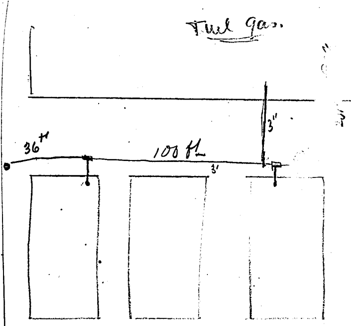
1 1¼ T

1 T 1¼ x 1¼ x 2

2 T 1¼

2 1¼ elbows.

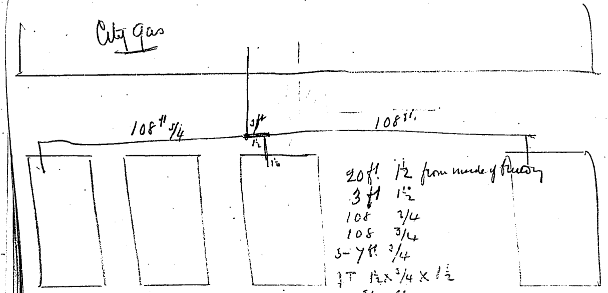
Fuel gas.


36 ft
100 ft
3'
3"

36 ft 4" pipe
6 ft 4" pipe
10~~4~~8 ft 3" pipe
" " "
20 5" pipe
1 4 X 3 X 4 T
~~1 3 X 3 X 2 T~~
1 5" elbows
4 ft 2" pipe
3 ft 2 pipe.
1 3 X 2 X 3.
1 2" elbow

(129)

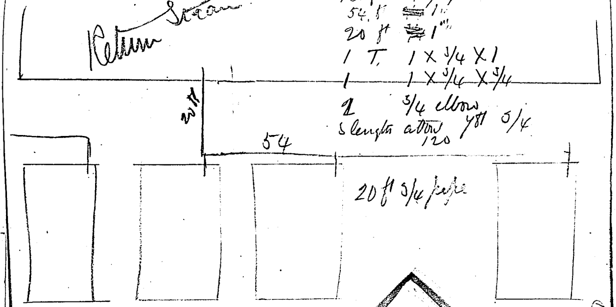
City Gas

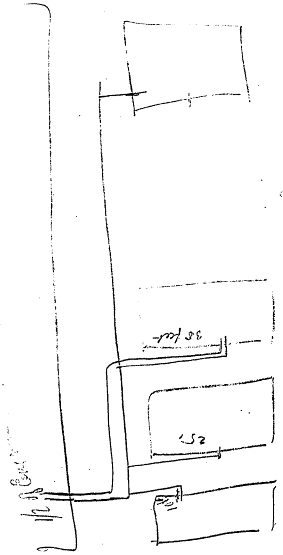

108" 5/4
3/4
1½
1½
108 ft

20 ft 1½ from inside of Factory
3 ft 1½
108 3/4
108 3/4
5-7 ft 3/4
1 T 1½ x 3/4 x 1½
2 3/4 elbows.
1 T 1½ x 3/4 x 3/4

(131)

120 ft 3/4 pipe
54 ft ~~[illegible]~~ 1"
20 ft ~~[illegible]~~ 1"
1 T. 1 × 3/4 × 1
1 1 × 3/4 × 3/4
2 3/4 elbow
5 lengths [illegible] 120 481 5/4


Return Steam
20 ft
54
20 ft 3/4 pipe

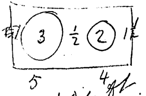

35 feet
25
10 ft
1/2

[illegible]oxes for pipes in [illegible]

[illegible]

88 ft for 10" pipe	10½ X 10½
45 ft for 9" pipe	9½ X 9½
19 ft for 8" pipe	8½ X 8½
6[illegible] ft for 4" pipe	4½ X 4½

Asbestos



9½ X 5

104 ft

9 X 5

~~5 X 5½~~

120 ft

3 X 3.

McNab & Harlin —

3 pipes like fig 1
~~the f~~ All flanges drilled
but the 3 flanges on the
short end must be drilled
to template enclosed

---

(1) One pipe like Fig 2
all flanges drilled —
We have the Gate Valve
here & can drill it to
suit your flanges
You will notice that the Gate valve is 7" & the T is 8" here must bolt togeth

(1) One Pipe like Fig 3
the flange not ~~Fin~~drilled

1 pipe like Fig 4.
All Flanges drilled

1 pipe like Fig 5
flanges drilled.

1 pipe like Fig 6.
flanges drilled

1 Reducing Casting planed
but not drilled – from
drawing left by our Mr
Batchelor at your store

~~[illegible]~~ drawings similarly 4 5 + 6
were also left there by him
and this order covers the order ~~to a duplicate~~
~~of those~~ he left – Please
therefore mark us back the

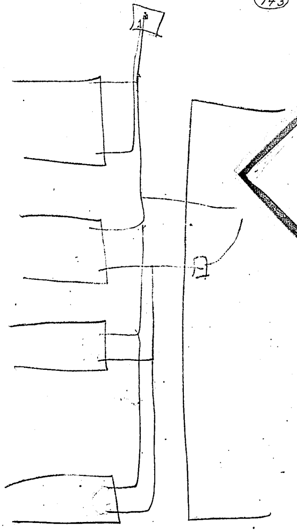
first tracing

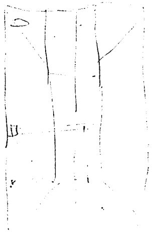
Order for #6 & #16 belt.

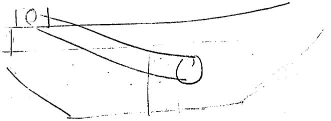
One endless belt of
~~36' 6" 4~~
37' long 6" wide. 5 ply
patent Cotton Leather belt

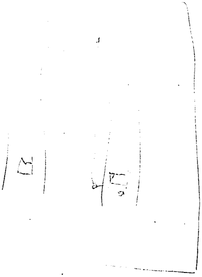
One belt of 10" five ply
Cotton Leather 45' 6" long

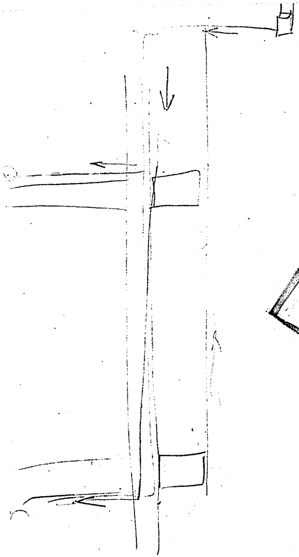
Order 1450



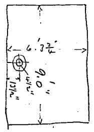


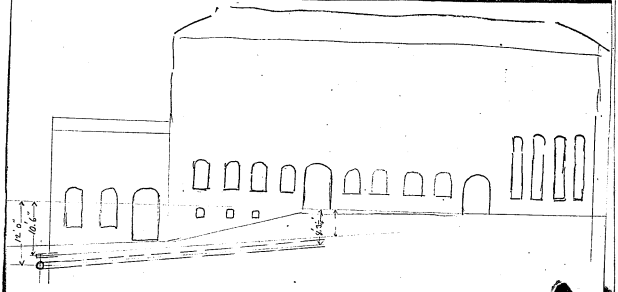






$$\begin{array}{r}12.0\\8.3\\\hline 3.9\end{array}$$


6'3¾"
9'0"
4½"
13½"



6"

13"
6
7"

3.' 5¼"

1 - 0
2½
.4
1 - 6½

112.5
227.0

112.5
224.10

7 - 3
1. 6
8. 9

10.'6" below floor line
7.3
17.9
8.9
9.

3.1
3.10½
3.6
10.'5½"

3. 10½"
3. 6
7. 4½ — from floor to drain
1. 0
6. 4½

15 lengths

150 15

3.2
1.1
4.3

3.5¼
1.1
4.6¼"

13" lower than floor

5.6¼"
.4
5.2¼"
1.1
6.3¼

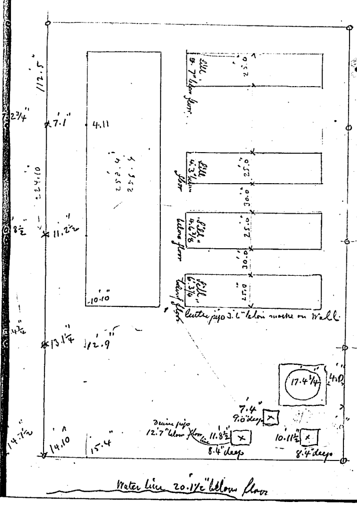
12. 2¾
2. 5
2. 9
17. 4¾"

5.' 2" below sill
2. 5
2.' 9' below sill

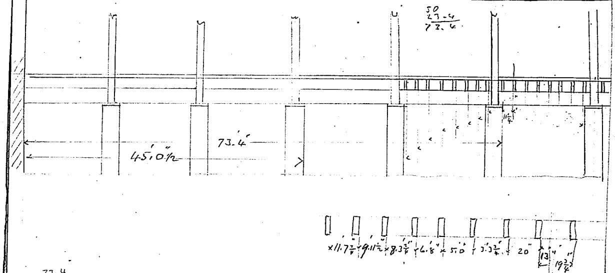
250' × 450'

6. 7
2. 9
7. 4

2.' 2'


112.5
7.2¾"
7.1"
4.11
224.10
5.5½
4.2½
8½"
11.2½"
-10.10"
4½"
13.1¼"
12.9"
14.7½"
14.10
15.4"
sill 4.7" below floor
25.0
sill 4.3" below floor
25.0
30.0
sill 4.6⅜ below floor
25.0
30.0
sill 6.3¼ below floor
25.0
Gutter pipe 3.6" below marks on wall
17.4¾
4.0
7.4"
9.0" deep
Drain pipe 12.7" below floor line
11.8½"
8.4" deep
10.11½"
8.4" deep
Water line 20.1½" below floor

2.6¼"
11¼"


50
23-4
73.4
73'4"
45'0½"
11¼"
11'7⅞"
9'11½"
8'3¾"
6'8"
5'0"
3'3¾"
20"
13"
19¾"

73.4
65.6
7.10